INTEGRATING ORACLE HUMAN RESOURCES WITH OTHER MODULES

Karl Sparks
Jet Propulsion Laboratory
California Institute of Technology

Shawn Shope
Ernst & Young LLP

ABSTRACT

One of the most challenging aspects of implementing an enterprise-wide business system is achieving integration of the different modules to the satisfaction of diverse customers. The Jet Propulsion Laboratory's (JPL) implementation of the Oracle application suite demonstrates the need to coordinate Oracle Human Resources Management System (HRMS) decisions across the Oracle modules. Implementations of HRMS and other applications that share its functionality require due diligence to identify requirements and agree upon set-up for those HRMS structures that are shared. To meet this challenge, the Human Resources (HR) project is actively using methodologies and tools to foster cross-project teaming. Readers will learn from the JPL experience why HR integration is so important as well as some practical ways to actually make integration occur. Significant touch points with other modules, enterprise-wide process threads and integrating Web applications are a few of the topics that will be addressed.

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Introduction

One of the most challenging aspects of implementing an enterprise-wide business system is the integration of the different modules to the satisfaction of all customers. In implementations which include Oracle Human Resources Management System (HRMS) and other modules which share its tables and forms, it is critical that the Human Resources (HR) team actively lead the integration effort to understand requirements against HRMS functionality and agree on the HRMS set-up used by other Oracle modules. The JPL HR project facilitated this integration through the proactive use of methodologies and tools that promoted cross-project teaming.

BACKGROUND

The Jet Propulsion Laboratory (JPL) is managed by the California Institute of Technology and located in Pasadena, California. JPL's primary federal funding source is the National Aeronautics and Space Administration (NASA), which contracts with JPL to explore deep space and expand knowledge of the universe. JPL employs approximately 5,000 scientists, engineers, technicians and staff. Historically, JPL projects have spent many years on research and development for large missions, such as Voyager, Galileo and Cassini. JPL's new project direction from NASA is toward 18 to 24-month smaller missions. JPL's recent success with Mars Pathfinder was the first mission following this new direction. However, Mars Pathfinder was accomplished using heroic measures--from both a technical and a support services standpoint.

JPL's new mission direction and its positive experience with Mars Pathfinder prompted an examination of JPL support services across the enterprise. To meet the demands of the 18 to 24-month mission cycles, Finance, Acquisition and Human Resources had to drastically improve the services they provided to the space flight projects. Funds, people and supplies were required to be rapidly available and re-deployable, following a "faster, better, cheaper" model.

An aggressive initiative began in 1995 to identify approaches to improve support services. Key to this approach were a client-server architecture, an integrated commercial off-the-shelf (COTS) information system, a package-enabled reengineering methodology and leading business practices. JPL selected Sun Solaris 2.5.1, E5000 computers and Oracle database hardware; Oracle application software; and Ernst & Young LLP and Oracle Corporation as implementation partners.

JPL will go live in two primary phases: HR and Timekeeping in May 1998 and Payroll, Finance and Acquisition in September 1998. The specific modules JPL will implement are: HR/Payroll, Oracle Time Management (OTM), Project Accounting, General Ledger, Purchasing, Inventory, Payables and Assets.

The HR project team, made up of 19 core JPL employees and 5 consultants, is organized around processes and oriented toward specific customer groups. Recently, the Payroll and Timekeeping team was added to the Human Resources project to enhance integration. Functional staff and customers are also involved in performing the work.

INTEGRATION ISSUES

In an enterprise-wide implementation that incorporates other functional areas, coordinating the set-up and operation of HRMS is a major effort and concern. Other modules use HRMS to feed core HR data, such as employees, organizations, jobs and locations, enabling such functionality as delivery points, validation of project charges and approval authorities. Many of the security and access needs of purchasing, accounting, assets and timekeeping are reliant upon how HRMS is configured. In effect, HRMS provides the platform from which the other modules launch their applications. It provides the basic infrastructure that gives functionality to finance and acquisition.

The most difficult integration hurdle is identifying all the infrastructure needs early in the project. This is particularly difficult in a re-engineering effort when process changes are so dynamic. Gathering requirements, sifting through priorities, combing similar needs and brokering divergent requests are all components of establishing an effective infrastructure for all modules. The advised approach that HRMS come up first, creates the burden of nailing the requirements early. Rework is expensive and can delay your project.

TOUCH POINTS

Payroll and Timekeeping require the greatest degree of integration with Human Resources. In organizations where Payroll is part of the finance department, integration with Human Resources presents more challenges. Nevertheless, benefits, compensation and employee records directly feed Payroll and Timekeeping, making extremely close coordination across these areas critical to effective solution design. More complicated compensation and benefits policies and practices heighten the need for close integration to ensure appropriate alignment of the compensation, benefits, payroll and timekeeping processes.

With Release 11, Oracle Training Administration (OTA) will take on even greater HRMS dependence, as training administration is aligned with individual career management and performance appraisal. It has yet to be seen, but this may require additional due diligence for future implementations of an Oracle software suite.

HRMS contains information elements that function as the "engine" of the software suite. Organizations, Jobs, Positions, Assignments and People "drive" processes in most other modules (See Exhibit 1). Therefore, how they are organized and implemented have crucial significance not just to Human Resources, but also to the entire enterprise. For example, an organization hierarchy may be essential for purchasing or general ledger applications. Jobs will be essential in meeting governmental reporting requirements. People must exist and be given an assignment to enter time, be paid or order supplies. Positions may be needed to establish people hierarchies. For example, positions can help identify who can sign a time card or approve a salary increase. Positions may also be important in

workflow processes for Acquisition, where more than one approval signature may be required.

Key HRMS Touchpoints

	Assets	G/L	Inventory	Payables	Projects	Purchasing	Timekeeping
Locations	✓		✓	✓	✓	✓	✓
Organizations	✓		✓	✓	✓	✓	✓
Organization Hierarchies			✓	✓	✓	✓	
Business Group	✓	✓	✓	✓	✓	✓	✓
Jobs			✓	✓	✓	✓	✓
Positions			✓	✓	✓	✓	
Position Hierarchies				✓	✓	✓	
Employee Assignment			✓	✓	✓	✓	✓
Employees	✓		✓	✓	✓	✓	✓
Cost Allocation		✓	✓	✓	✓		✓

Exhibit 1

Project Accounting is another area that must be considered by the Human Resources implementation. For example, the traditional organization hierarchy may not support the needs of Project Accounting, particularly where you have a "matrixed" organization. JPL is just such an organization. Each person has a home organization, but may be working on several projects at the same time. It is the projects that are funded at JPL; therefore, it is the projects that fund the salaries of individual people. This funding architecture, then, requires a separate organization hierarchy based on funding resources. Each person must be "authorized" to charge his/her time to a particular project or account. Each person must be "authorized" to purchase materials commensurate with the role they play on a particular project. Yet, each person must still have a "permanent" home and supervisor to whom he/she reports. These complexities must all be accounted for in the Human Resources module.

In all, there are six HRMS key flexfields that must be decided upon early in the implementation. They must be decided such that each application can utilize the infrastructure without compromising the basic functionality of another. Those key flexfields are Job, Position, Grade, Cost, Personal Analysis and People Group.

Sorting through this myriad of competing needs and requirements against HRMS is not an easy task. However, it is incumbent upon the Human Resources project team to do just that. Each competing interest

will also want to minimize any development or maintenance that they might have to perform. This is where clarity seeking, negotiating and trade-offs come into play.

METHODS OF INTEGRATION

JPL's implementation experience illustrates several methods of facilitating integration between Oracle HRMS and the other Oracle modules. Some of these methods were developed by the JPL project team; others were adapted from Ernst & Young's Fusion methodology or Oracle's Application Implementation Methodology (AIM). Rather than using a "cookbook" approach, it was critical to success that methods be adapted to reflect the culture, mind-set, and working style of the team and the larger enterprise program. Depending on where you are in the implementation continuum, you may be able to adapt the following methods to foster integration:

Content Based Methods

- *Business case development:* The team developed "business cases" to formally investigate and decide major issues having impact on policy, cost, schedule and/or scope. Detailed analyses of alternative pros, cons, costs, and assumptions were performed to identify the recommended alternative. Because many business cases crossed module areas, they served to integrate implementation team members and foster early identification of integration issues. For example, to decide the issue of whether contractor acquisition would reside in the Acquisition or HR organizations in the future, Acquisition and HR implementation team members jointly worked the business case. The information exchange provided by the business case forum identified set-up requirements to handle contractor data in HRMS that existed regardless of the business case resolution.

- *Process Threads and Walk-throughs:* Presenting HR project team work (and attending the corresponding presentations by the other module implementation teams) is extremely helpful in identifying process touch-points and integration areas within the Oracle software. In particular, mapping out an employee life cycle and linking that to the life cycle process maps from the other module implementation teams to form process threads begins to identify the cross-module

touch-points that will require consideration for process design, set-up, development and system testing. In the process thread exercise, teams map their major processes together to identify and resolve design gaps and conflicts. The updated process thread can then serve as the basis for an integrated walk-through of the Oracle product. An example of an enterprise-wide process thread is shown in Attachment A.

- *Decision-focused sessions (DFS):* These are tightly facilitated meetings in which decision-makers are brought together to resolve specific issues. Characteristics of DFS are shown in Exhibit 2.

DFS Characteristics	
• Significant pre-planning	• Advance preparation materials
• Strong facilitation	• Straw solutions
• Subject matter expert leadership	• Direct access to tools
	• Knowledge workers
• Committed stakeholder participation	• Real-time documentation
• Empowered decision-makers	• Off-site location
	• Non-traditional format

Exhibit 2

The JPL Human Resources project team used the DFS method to decide global HRMS set-up issues, such as organizations, locations and positions. The team prepared executive summaries for each set-up component outlining:

- Definition
- Description
- Requirements
- Stakeholders
- Issues to be decided

In some cases, these summaries included a pro and con analysis of various alternatives and straw recommendations. Summaries were provided in advance to DFS participants to facilitate their preparation and springboard the productivity of the DFS. An example summary is shown in Attachment B.

The DFS sessions were facilitated according to a prescribed format that built upon the executive summaries already provided to participants:

- Introduce the subject
- Identify and discuss requirements
- Present potential solutions
- Identify implications of solutions
- Decide preferred solution

Oracle subject matter experts led empowered stakeholders toward solutions. The pace and quality of these solutions was facilitated by direct access to Oracle HRMS and the ability to demonstrate Oracle's functionality real-time.

- *Touch-points in script writing and Conference Room Pilot (CRP) testing:* The HR team wrote test scripts reflecting how they thought Oracle enabled HR processes might work. In each of those scripts, the team was careful to identify where and when the process or system might involve or "touch" another module or process outside of HR. Next, scripts were forwarded to the stakeholders of those modules and processes for review and input prior to CRP testing. Stakeholders then participated in the CRP to validate the process and test the system solution design, ultimately leading to tests of enterprise process threads, as scripts were linked together at their touchpoints to form integrated threads.

Communication Methods

- *Issues/Decision Log:* In project management, learning about issues early can truly determine success or failure. A central issues and decisions log is a simple, but effective, way to keep "issues resolution" on the front burner. Making the log accessible to all stakeholders has the added effect of promoting integration across module teams. An issues and decisions log or tool can be as simple or complex as needed. Key components of an issues/decision management tool include a clear statement of the issue, when resolution is needed, who is responsible for resolution (one person better ensures accountability), what the implications are if it goes unresolved and ultimately the decision or resolution to the issue. See Exhibit 3 for an example of the issues/decision tool (Remedy software) JPL is using to track and resolve issues.

Oracle and JPL knowledge workers researched outstanding issues during breaks, then provided quick turnaround answers, and overnight, JPL executives finalized those decisions requiring additional sponsorship. The off-site location served to heighten task focus and minimize interruptions while the non-traditional format helped promote out-of-the-box thinking. Finally, real-time documentation enabled participants to validate and sign-off on decisions at the end of the sessions.

Exhibit 3

- *Decision Publishing and Change Review:* Once decisions are made, there must be a definitive and rapid way of communicating them to stakeholders. The HR project team found that using a standardized format that was recognized as a "decision publication form" facilitated dissemination of decisions, enabling people to act on those decisions more quickly. Yet, the benefits of structured decision publishing and change review go beyond simply enabling people to act on decisions: at times, just knowing that a decision has been made can break up inertia within a team; and knowing that reversing a decision requires a formal appeal process can keep decisions from being reopened unnecessarily and thus help keep endless discussion of the issue from slowing project progress. Publishing issues resolutions/decisions along the way clearly contribute to sound project management and enhanced integration across stakeholders—a need that is magnified in complex enterprise implementations.

- *Tactical Meetings:* At different points in an implementation, it is necessary for the

implementation teams to spend focused time together targeted at sharing information across teams. At JPL, tactical meetings are held daily, never take more than 20 minutes, and focus on status and critical issues related to integration. The JPL tactical meeting report format is as follows:

- Status of action items from previous tactical meetings
- Status of near-term work plan activities and key issues
- Integration assistance needed from other teams

A positive peripheral effect of these tactical meetings is that team members often meet briefly afterward to deal with issues in more depth and are able to more quickly and effectively move forward than if they had had to coordinate a separate meeting.

- *Retreats and Team Building:*
  Getting away from the project on a regular basis is important for the team and its stakeholders. Retreats and team building activities are typically difficult to fit in when a project seems to be all-consuming and behind schedule. Nonetheless, team members can only work overtime for limited periods before it begins to take its toll on productivity and quality. Planning retreats and team building activities on a regular basis help to revitalize the team and can foster integration and understanding across disparate stakeholder interests. Be sure to include these activities in your plan.

Structure Methods
- *Co-location:* Having the project teams working within the same proximity serves to "force" integration. Seeing someone in the hall or hearing them over the cubicle wall prompts easy, timely and streamlined intra and inter-team communication. The more open the architecture, the more likely this integration is to occur. Providing meeting areas that do not need to be scheduled also promotes impromptu and targeted communication.

- *War Rooms and Tiger Teams:*
  During an implementation project, major stumbling blocks may present themselves that, unless solved quickly and resolutely, will substantially affect the ability to complete the project on time and/or within budget. In such cases, one approach that might prove successful is a dedicated event of specified duration that focuses on breaking through

these issues. The JPL Human Resources team encountered just such a block at the point when development was to begin. There existed an inability to translate functional team designs into tasks that the technical team could execute. "Tiger teams" were formed and put in a "war room" to work through these difficulties. Tiger teams were composed of functional experts, Oracle functional applications specialists, technical developers, a facilitator and documentor. These detailed, process-centered sessions worked well because the key knowledge areas necessary to clarify and detail designs were represented. The output of these Tiger Teams were completed functional designs that the technical developers understood, draft technical designs and significantly reduced customization scope.

- *Strategic Teaming:* Strategic teaming refers to flexibility in organizing a team based on changing business imperatives. In each phase of an implementation, the way a team is structured may need to be altered. For instance, including strategic stakeholders at certain junctures of the project can help to gather data, validate solutions and foster buy-in. In other instances, changing the structure of your core implementation team may be appropriate. In certain phases, the HR Team worked as four individual teams, each with an emphasis on certain customer groups. In other phases, all sixteen permanent project members worked as one large team. In the latest iteration of strategic teaming, Payroll and Timekeeping were added to the Human Resources project to ensure close integration.

Post-Implementation Methods
- *Support Services Planning:* After the project "goes live" there will be a need for some form of help desk. Involving module implementation teams, support services process owners and end users in the development of a comprehensive support services plan can enhance end user acceptance through the provision of "one-stop shopping." This approach also serves to integrate the Oracle application with other services that may or may not be part of the project, e.g., network support, Web support, or even application development support.

INTEGRATION OF THE WEB

Oracle Corporation's focus on Web access to its applications was a major determinant in the selection of Oracle software by JPL, given the multiple platforms in use at the Lab. Effectively deploying this Web capability requires substantial integration effort to ensure that the enterprise has a consistent approach to using Web technology and that this approach is consistent with the design of the still evolving Oracle Web applications. JPL has focused on two primary issues related to its Web implementation:

- **Security route to all functions:** Users require a consistently secure navigational path to all functions within Oracle. Since the organization and position hierarchies upon which application, and thus Web, security is built are part of HR set-up, Oracle HR must reflect appropriate security profiles to support not only HR but also the other modules. The HR team, therefore, should be integrally involved in helping to define and meet integrated requirements for security.

- **One "look and feel":** To facilitate user acceptance and minimize training, there should be a consistent look and navigational path across all Web-based applications. Since Oracle is redesigning Web Employee for Release 11, the HR Team has needed to take the lead in defining a Web appearance and functionality for the enterprise that will be compatible in look and feel with the upcoming Web Employee enhancements. This coordination will mitigate the risk that JPL, for instance, will develop an icon-based menu of Web services while Oracle is developing frames and text, the end result of which would be a major shift in user access modalities that would require additional marketing, education, training, follow up and support services time.

CONCLUSION

A key challenge of implementing integrated enterprise-wide business systems is being able to identify requirements and synthesize designs that meet the functionality needs of different modules. In a shared implementation where Oracle HRMS tables and forms provide a foundation for other Oracle modules, successful implementation requires early analysis to understand other module requirements against HR functionality and define mutually acceptable solutions. Recognizing the importance of integration across the teams, the HR Project Team involved members of other Oracle implementation teams, proactively employing methodologies and tools to promote cross-project teaming during each project phase. Whether the HR Team is focused on determining set-up configurations, defining the architecture for the Web or developing a common post-implementation customer support process, it is a critical success factor that integration implications be understood and addressed at each step.

About the Authors

Karl Sparks is the HRIS Manager for JPL and is currently serving as project manager for the Oracle Payroll, Human Resources and Timekeeping implementation. Prior to JPL, he served as chief human resources officer in various higher education institutions for over 20 years. Karl is currently the secretary of the OAUG Global HRIS SIG and has been president of the College and University Personnel Association (CUPA) and International Human Resource Information Management Association (IHRIM) chapters located in the Pacific Southwest.

Shawn M. Shope, a manager with Ernst & Young LLP Management Consulting in Los Angeles, is currently helping to manage JPL's Oracle HRMS implementation. Shawn specializes in transforming support processes in the aerospace/defense, entertainment, health care and public sector industries. She has over eight years of human resources experience and is certified as a Senior Professional in Human Resource Management.

Attachment A

Initiate

```
┌─────────────────────┐
│                     │                          5 Days
│ Forecast Future Needs│        ─────────────────────────────────────────────────────
│                     │
└─────────────────────┘


┌─────────────────────┐
│                     │
│   Price A Proposal   │
│                     │              ┌──────────────────┐
└─────────────────────┘              │ Establish Project │
                                     │    Structure      │
                                     └──────────────────┘

┌─────────────────────┐                                      ┌──────────────────┐
│                     │                                      │ Assign Funds to PA│
│  Budget Direct Effort│- - -                                 │   Agreements      │
│                     │                                      └──────────────────┘
└─────────────────────┘

     Plan A Project

   ┌──────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────────┐  ┌──────────┐
   │Submitted │  │Receive Sponsor│  │   Process    │  │Assign Funds  │  │Establish Cross│ │ Funded   │
   │ Proposal │  │ Acceptance &  │  │ Contractual  │  │   to G/L     │  │ -Validation   │ │ Project  │
   │          │  │Evidence of    │  │ Documents    │  │              │  │   Rules       │ │Structure │
   └──────────┘  │  Funding      │  └──────────────┘  └──────────────┘  └──────────────┘  └──────────┘
                 └──────────────┘
```

At the end of
initiate, we have
the ability to
accumulate costs
on a project

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Attachment A continued

Provide Workforce

```
                  Contractor House        Candidate           Employee

Requisition to Accept                                                      Requisition to on-the-job
  External = 14 days                                                    Contractor Technical = 14 days
  Internal = 5-8 days                                                    Contractor Secretary = 1 day
                                                                            External = 31 days
                        Contracting House    Scan Resumes                   Internal = 22-25 days
                            Database         Input Applicants


                                              Resumix/
  Training and                                 Oracle        Negotiate/Execute                      Take Required
  Development                                  Database          Contract                          Medical, Exams,
                                                                                                   Course, Training, etc.

                                                                                    Perform Necessary
                                                                                    New Person at Lab
                                             Review                                 Activities or Change
                                                                    Input/Update Person/   Activities
 Identify Personnel/                          &        Select   Make External Offer   Accept   Status Information   (badge, parking, e-   Person on the job
    Skill Need     Create Requisition  Post Job  Interview                              & Establish Standard  mail, keys,charge
                                                                                           Benefits       authorization, asset
                                                                                                          accountability)

                                                                                                            aka Deploy
 Workforce forecasting                                          Make Internal Transfer/
                                                                  Promotion Offer
```

Attachment A continued

Pay 100% of the time within contract terms

```
┌─────────────────────┐                              ┌─────────────────────┐
│ Capture Contractor  │                              │  Pay Contracting    │
│   Hours & Costs     │─────────────────────────────▶│     Company         │
└─────────────────────┘                              └─────────────────────┘


┌─────────────────────┐   ┌─────────────────────┐   ┌─────────────────────┐
│     Input Time      │──▶│ Cost & Distribute   │──▶│   Pay Employees     │
│                     │   │      Labor          │   │                     │
└─────────────────────┘   └─────────────────────┘   └─────────────────────┘


┌─────────────────────┐   ┌─────────────────────┐   ┌─────────────────────┐
│ Notifiy of          │──▶│ Update Information  │──▶│ Perform Necessary   │
│ termination         │   │ (status, forwarding,│   │  Checkout Steps     │
│                     │   │   COBRA, etc)       │   │                     │
└─────────────────────┘   └─────────────────────┘   └─────────────────────┘
                                                                │
                                                                ▼
                                                     ┌─────────────────────┐
                                                     │   Provide Final     │
                                                     │     Paycheck        │
                                                     └─────────────────────┘
```

Attachment A continued

Provide Products & Services

JIT → (A)

P-Card → (B)

Request Stores Stocked Item → Pick Item From Stock → (C)

Request to Desk = 4 Hours

Pick Item From Stock → Maintain Inventory

Identified Need → Assist in determination of fulfillment method

Utilize Blanket Item → (D)

PO (No RFP/RFQ) , Authorization to delivery = 3.5 days

Utilize Other PO → Generate Authorization to Buy → RFQ/RFP → Select Vendor → (E)

Utilize Subcontract

Evaluated Subcontract, Authorization to Signed Contract = 65 days

Re-utilize Existing Asset → Reassign or Reallocate Asset → (F)

Utilize Internal Service → Generate Request → Generate Estimate or Feedback → Approve (implicitly?) Estimate → (G)

Request to Estimate or Feedback
< 1 day

2/26/98 6:02 PM

A → JIT Receive

Attachment A
continued

Provide Products
& Services

Dock to Desk
< 1 day

B, C, F

D, E → Place Order → *Receive Item or Service in System* → Deliver to End User → *Receive Invoice* → *End User Confirms Receipt* → Pay

G → Open Work Order → Procure Necessary Items/Materials/ Services

Charge Time Against Work Order

Establish Asset Record

Attachment B

ITEM 1 - LOCATION

Definition
Location refers to a physical site, such as 4800 Oak Grove, Pasadena, CA 91107

Description
The Location Table in the Oracle HR Module is used primarily to define physical sites and addresses. However, other Oracle applications, such as Purchasing, A/P and Fixed Assets, also access this table and have additional requirements. Some of these requirements are simply additional address entries to the table. Other functions require detailed employee location information, such as building, room, etc. Putting detailed information in the location table leads to more complexity in use and greater, ongoing responsibility and resources for keeping it updated and accurate.

Issues
1. Do we accommodate the requirements of the other applications by carrying detailed information in the location table OR
2. Do we restrict the entries to a few specific needs and satisfy the need for detailed employee location information through other means? There is, for example, an "Office Location Information" field attached to each employee in the HR Module that could supply detailed information. However, this option would require some customization of Oracle.

Stakeholders
* Accounts Payable
* Facilities
* Fixed Assets
* Human Resources
* Inventory
* Payroll
* Purchasing
* Security

Requirements
1. Ability to enter and maintain locations of JPL work sites including sites outside of California.
2. Ability to define and enter characteristics for the location such as ship-to or bill-to address.
3. Ability to add locations as needed.
4. Ability to include comments such as "Attention Accounts Payable" in the location address.
5. Ability for Facilities to track and maintain occupancy utilization.
6. Ability to track three levels of locations for Fixed Assets: site, building, room. Must have ability to track an individual's assets across multiple locations.
7. Ability for Purchasing to have "Deliver to" address.
8. Ability to track employees down to building, cubicle, mail stop.
9. Ability to validate and control locations; needs to be validated against a master table of all locations so duplication does not exist.